

#### ABSTRACT OF THE DISCLOSURE

A thermoacoustic generator includes a housing with a thermoacoustic core supported in the housing. The core is operable to introduce acoustical power into the housing to thereby oscillate the pressure of the gas in the housing at a frequency. A  
5 piezoelectric alternator is also supported in the housing and has a face that is movable when acted on by the acoustical power. The alternator includes a portion of piezoelectric material operable to produce electrical power when acted upon by a stress. The piezoelectric material is in mechanical communication with the movable face so that movement of the face stresses the piezoelectric material. The alternator has a moving  
10 mass that serves as a substantial portion of the resonating mass inside the housing, thereby providing a pressure oscillation frequency in the housing substantially lower than for a similar system with a rigid member replacing the alternator.